

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

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| Date of mailing (day/month/year) 04 October 2000 (04.10.00) | |
| International application No. PCT/GB00/00571 | Applicant's or agent's file reference SCB/51638001 |
| International filing date (day/month/year) 17 February 2000 (17.02.00) | Priority date (day/month/year) 24 February 1999 (24.02.99) |
| Applicant PICKERING, Stephen et al | |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
27 July 2000 (27.07.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

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| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35 | Authorized officer Juan Cruz Telephone No.: (41-22) 338.83.38 |
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PATENT COOPERATION TREATY

PCT

REC'D 15 MAY 2001

INTERNATIONAL PRELIMINARY EXAMINATION REPORT PCT

(PCT Article 36 and Rule 70)

| | | |
|--|---|---|
| Applicant's or agent's file reference SCB/51638001 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/GB00/00571 | International filing date (day/month/year) 17/02/2000 | Priority date (day/month/year) 24/02/1999 |
| International Patent Classification (IPC) or national classification and IPC B01J23/02 | | |
| Applicant EUROPEAN COMMUNITY represented by THE COMM et al. | | |


1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

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| Date of submission of the demand 27/07/2000 | Date of completion of this report 10.05.2001 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized officer Falls, F Telephone No. +49 89 2399 8350 |



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/00571

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-29 as originally filed

Claims, No.:

1-27 as received on 27/03/2001 with letter of 27/03/2001

Drawings, sheets:

1/12-12/12 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/00571

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | |
|-------------------------------|-------------------|
| Novelty (N) | Yes: Claims 18-27 |
| | No: Claims 1, 16 |
| Inventive step (IS) | Yes: Claims |
| | No: Claims 1-27 |
| Industrial applicability (IA) | Yes: Claims 1-27 |
| | No: Claims |

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

I

1). Prior Art

US-A-5212130(D1) gives a general teaching to form a composite of Ba compound, Al oxide and to contact it with a substrate and then to heat to a high temperature to form a composite suitable as a catalyst substrate, in which the Ba compound may be an oxide and the alumina is largely γ -alumina (see Cl's 1, 3 & 8). D1 also gives a more specific teaching to form the composite of Al and Ba oxides from boehmite, followed by heating to a high temperature and applying to a substrate (see Ex. 3, col. 10-11).

2). Novelty (Art. 33(2) PCT)

With regard to claim 1 the most relevant prior art is in Ex. 3 of D1. As the solution of the Ba hydroxide forms a slurry with the boehmite, a substantially homogeneous mixture of Al and Ba compounds is formed. (It is noted that a homogeneous solution as defined in the application includes any composition in which the Ba and Al compounds are intimately mixed and includes slurries of the alumina or boehmite in a solution of a Ba compound (see pg 5, l. 11-19).) The subsequent drying described in the example would give particles of boehmite at least partially covered with Ba compound, suitable as a precursor for use in the preparation of a stabilized alumina catalyst support. Thus the process of claim 1 lacks novelty.

It appears that heating to 600°C for 6 hrs in Ex. 3 would render at least some of the boehmite in the form of γ -alumina. Therefore the subject-matter of claim 16 appears to lack novelty.

The subject-matter of claim 18 and of claim 22 is formally novel in view of feature "dispersing on a metal or ceramic substrate" since Ex. 3 does not disclose the nature of the substrate referred to.

The intermediate product in Ex. 3 (i.e. before heating to 600°C) comprises boehmite particles with a form of Ba compound on its surface. As it is not clear what the chemical form of the Ba is and that the boehmite is completely coated with the Ba layer the subject-matter of claim 23 appears to be novel.

The product formed in Ex. 3 on heating to high temperature is a stabilized alumina form which would consist largely of a transition form of alumina (possibly γ -alumina) coated with a layer of Ba oxide. However the subject-matter of claim 25 may only be considered formally novel if the alumina is not be completely coated.

3). Inventive Step (Art. 33(3) PCT)

The subject-matter of claims 18 and 22 lack an inventive step since D1 discloses a metal or ceramic substrate (see col. 5, 24-27). Thus one skilled in the art would readily derive the teaching of these claims from this teaching and that of Ex. 3.

The subject-matter of claims 23 and 25 if novel is not inventive since complete coverage of the boehmite or the transition alumina is an option which the skilled person would certainly consider.

It is not apparent that the features of any of the dependent claims introduce an inventive step. Some of these are disclosed in D1 or are otherwise known in the art. The combination of a Ba compound with alumina as a way of preserving the surface area of transition alumina is explicitly taught in D1 (see col.11, 37-44). it is not apparent that the application offers a solution to any problem which is not solved by the teaching of D1.

II

The following matters arise under Art. 6 PCT:

1). Claim 25 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved which merely amounts to a statement of the underlying problem. The technical features necessary for achieving this result should be added.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00571

2). Although claims 18 and 22 have been drafted as separate independent claims for a catalyst, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection. Hence, claims 18 and 22 do not meet the requirements of Article 6 PCT.

III

The application also fails to meet the requirements of the PCT convention in the following respects:

- 1). Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
- 2). The term Jeol EX/II (pg 22) appears to be a trade mark and ought to be designated as such.

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

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| Applicant's or agent's file reference SCB/51638001 | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/GB 00/ 00571 | International filing date (day/month/year) 17/02/2000 | (Earliest) Priority Date (day/month/year) 24/02/1999 |
| Applicant EUROPEAN COMMUNITY represented by THE COMM et al. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 00/00571

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01J23/02 B01J23/58 B01J37/02 B01D53/94

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-------------------------------------|
| X | <p>DATABASE WPI Section Ch, Week 199040 Derwent Publications Ltd., London, GB; Class H06, AN 1990-302272 XP002140068 & JP 02 214541 A (TOYO KOGYO CO), 27 August 1990 (1990-08-27) abstract</p> | <p>1,2,17, 19,20, 24,27</p> |
| Y | <p>----- US 5 212 130 A (ADDIEGO WILLIAM P ET AL) 18 May 1993 (1993-05-18) claim 1</p> | <p>4-6</p> |
| Y | <p>----- US 5 212 130 A (ADDIEGO WILLIAM P ET AL) 18 May 1993 (1993-05-18) claim 1</p> | <p>4-6</p> |
| A | <p>----- US 5 116 800 A (SUMMERS II JACK C ET AL) 26 May 1992 (1992-05-26) -----</p> | |

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

20 June 2000

Date of mailing of the international search report

28/06/2000

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/00571

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| JP 2214541 | A | 27-08-1990 | JP 2744275 B | 28-04-1998 |
| US 5212130 | A | 18-05-1993 | EP 0560074 A | 15-09-1993 |
| | | | JP 6000372 A | 11-01-1994 |
| US 5116800 | A | 26-05-1992 | DE 69104062 D | 20-10-1994 |
| | | | DE 69104062 T | 23-03-1995 |
| | | | EP 0561904 A | 29-09-1993 |
| | | | MX 9102196 A | 01-06-1992 |
| | | | WO 9210271 A | 25-06-1992 |